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## THE WORLD AS FORCE.

[WITH ESPECIAL REFERENCE TO THE PHILOSOPHY OF MR. HERBERT SPENCER.]

BY JOHN WATSON.

*II. Indestructibility of Matter.*

In a former article<sup>1</sup> an attempt was made to show the imperfection of that conception of existence, so alluring to minds whose energies have gone mainly in the line of scientific enquiry, which ranks Intelligence among the special forces of nature, and refuses to it any claim to an exceptional position. It was there contended that the reduction of Intelligence to Force rests upon an uncritical separation of the two correlatives, Nature and Reason, which is degrading to both alike; leading, on the one hand, to the destruction of reality, and on the other, to the dissolution of knowledge. In illustration and proof of this position, an examination of Mr. Spencer's remarks upon Space, Time, Matter, Motion, and Force was entered upon; the upshot of which was that, starting from that Dualism which may be said to be one aspect of common-sense knowledge, and assuming a ready-made and variously qualified world to begin with, Mr. Spencer plausibly evacuates Nature of rational elements, but only because those elements are covertly assumed, while openly they are unrecognized or denied. Intelligence, it was maintained, is not reducible to Force, any more than it is convertible with Matter: it is as little definable in terms of Motion as in terms of Time or of Space. To make Reason dependent upon that which it alone makes possible, upon that which apart from Reason is a blank, unthinkable abstraction, is to display a philosophical perversity, or a confusion of thought, that could not well be exceeded. The evil result of this inverted conception of reality was pointed out in the reversal of the true order of dependence in the special conceptions treated of—Force being put first,

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<sup>1</sup> Jour. Spec. Phil., April, 1878, p. 113, ff.

instead of last — and in the self-contradictory assumption that individual sensations or feelings, which *ex hypothesi* are free of relation, are convertible with the relations admittedly essential to the constitution of the real world of nature. In contrast to this, it was held that Nature is not the antithesis of Intelligence, but simply Intelligence in its lower stages ; and that Space, Time, Matter, Motion, and Force, as each in turn is a higher synthesis of universal and particular, thought and existence, mark a gradual ascent at once in Nature and in Intelligence, so that Force, as the last stage reached, is the apex of Nature, the most perfect unity in diversity of that which we distinguish logically as the material world.

In the criticism of Mr. Spencer's view of Nature, and the presentation of the speculative view, it was incidentally pointed out that the problem of philosophy is not, How does the individual man, by his particular sensations, gradually appropriate objects that lie beyond the range of consciousness? but, How does Intelligence manifest itself in Nature, and by successive stages mount up to a higher plane? The former question admits of no answer ; because, in assuming that the particular alone may reveal that which is real, it virtually denies knowledge and overthrows reality. To the empirical psychologist this must seem a foolish, as well as a "hard" saying, only to be explained as one of the wild and incoherent utterances of an Idealism intoxicated with abstractions. It will naturally be replied that Intelligence, as we know it, is always a possession of individual men, and that any universal Intelligence, other than the sum of individual Intelligences, can only be a fiction of the over-speculative imagination. The only way in which a knowledge of reality can be obtained at all, it will be said, is through the senses of individual men, and any method which pretends to do more than manipulate the materials supplied by sense must produce sham, and not real, knowledge.

Adequately to discuss the problem here raised would require an extended enquiry into the mutual relations of Metaphysics and Psychology, and such an enquiry cannot be attempted here ; but, to prevent misapprehension, as well as to indicate

the general direction in which the answer lies, a single remark may be made. The assertion that there is a purely individual intelligence, if by that be meant an intelligence existing in isolation from a real world, and from other intelligences, is a self-contradictory proposition. An intelligence so shut up within itself could never have any knowledge of nature, or of other intelligences, or even of itself. Consciousness involves an object to be known not less than a self to know it; but an intelligence of the kind imagined could have no object whatever before it, and therefore could have no knowledge. To be conscious of any real object of nature, it would have to go out beyond the limits of its self-isolation and give up its individuality. To be conscious of other intelligences, it must perform the astounding double feat of going out of itself and of dragging from their enclosure a number of other self-involved individuals. Nor could an individual intelligence be conscious even of its own sensations, for such a knowledge implies the distinction of one real sensation from another, and of both more or less explicitly from itself, *i. e.*, the partial construction of a real world. A purely individual intelligence — an intelligence exclusive of universality — is a fiction of the abstracting intellect. We do, indeed, for sufficient reasons, distinguish one individual man from another; but, just as it is absurd to say that one individual may exist alone, and constitute a universe by himself, so it is impossible for an individual intelligence to exist that is not universal. Consciousness, at least, certifies to the reality of its own objects as such, for otherwise it could not even establish itself; and, hence to speak of a merely individual consciousness, of an intelligence existing purely for itself, is but to proclaim, and so to deny, a universal skepticism. We may, therefore, safely conclude that, whatever psychology may have to tell us of the intelligence of individuals, it can never prove the individuality of intelligence; it cannot overthrow the essential conditions of all knowledge without at the same time overthrowing itself. From unrelated sensations, from feelings that are not universalized, no reality and no knowledge of reality can be evolved; the very beginning of intelligent experience involves the re-

flection of particular sensations upon each other and into a universal self, and hence that stage of knowledge we call sensation is really a mode of thought, differing only in degree from thought in its higher and more complex forms. By the differentiation of feelings that are thought—*i. e.*, of real relations from each other and from the thinking self—the known universe gradually grows up, broadening in complexity and cohering into closer unity. Analysis and synthesis, nature and thought, are but different aspects of a single process.

By Matter, in all of its significations—and it has many—is meant the totality of substances, or the unity underlying all substances. As a Substance is a combination of properties, so Matter is a combination of Substances. It is indispensable, in estimating the relation which the doctrine of the Indestructibility of Matter bears to the wider doctrine of the correlation of forces, that we should have a perfectly clear consciousness of what we really mean when we affirm Matter to be indestructible, and hence it seems advisable to clear the way by setting forth the various correlative meanings of the terms, Substance and Matter.

There are at least four distinct senses in which writers of the school of Spencer speak of Substance and of Matter. The first corresponds to the conception held by common sense, the second and third are characteristic of the special sciences, and the last is peculiar to Spencerian Metaphysics. When the “plain” man speaks of a Substance or Thing, he means by it something known to him by its sensible properties. Each thing is, he would say, directly perceived, and it can at any time be recognized by its characteristic marks. A substance thus includes the notion of persistence through successive times, or Identity, and this Identity is assumed to be independent of mere temporal succession. Moreover, a substance need not be unchangeable in all of its properties; so long as those which characterize or define it, those *essential* to it, remain, the identity of the substance is taken for granted. At the same time, as each Thing is known and recognized by properties directly, or apparently directly, presenting themselves, the maximum of change that a

substance may undergo without losing its identity is relatively small. Among the changes regarded as unessential, change in place is prominent; a Substance, provided it retain its color, weight, etc., is not supposed to lose its identity by transference to another place. A Substance is thus indifferent, not only to succession in Time, but to motion in Space. We may say, therefore, that, in ordinary knowledge and in popular language, a substance is that which is known and recognized as identical by its essential properties; or that which remains identical with itself, notwithstanding a change in unessential properties. The common conception of Matter corresponds to the common notion of Substance. Ordinarily, we are not accustomed to think or speak of Matter, but only of Substances. Still there are times when we vaguely think of all substances as together making up one world of nature. The bond uniting the infinity of individual Substances is Space and Time, which, before, we had rejected as unessential. The conception of Substance and the conception of Matter cohere, in so far as each Substance, notwithstanding its individuality, is regarded as a part of Matter; but common sense does not ask how matter can be a unity, while yet it is differentiated in an infinity of distinct Substances. It is enough for it that all Substances are in one Space and one Time.

The first of the scientific conceptions of Substance and of Matter is the product of an extension and partial rectification of the popular conception. By the chemist or physicist the name Substance is applied to "the solids, liquids, vapors and gases, the ponderable, visible, and resistant objects of sense."<sup>2</sup> This notion of Substance differs only in degree from that of common sense. The weakness of the latter is that things are distinguished from each other only by their most obvious properties, while their deeper

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<sup>2</sup> G. H. Lewes, *Problems of Life and Mind*, vol. 2, p. 204, Am. ed. I cannot help saying here that, in this work, Mr. Lewes seems to me to come nearer to the speculative point of view than any other member of the empirical school I know of. His remarks on Matter, Force, and Cause (p. 203, ff.) are exceedingly fresh and suggestive.

relations are overlooked. Science fixes upon more permanent attributes, and hence its comprehension of that which constitutes the identity of a Substance is more accurate and more profound. The difference, then, lies in the more exact differentiation of Substances from each other, and in the fewer number of properties conceived to form the essence of a substance. The properties by common sense regarded as essential are looked upon as unessential, only the more permanent properties hidden from common sense being regarded as essential. Besides the compatibility of change of place and succession of time with the essential identity of a substance, science adds that a change in the prominent sensible properties does not in any way affect that identity. A substance, in short, is that which retains its identity, notwithstanding change in place and succession in time, because it remains unchanged in its chemical, electrical, or physical properties. Matter will, therefore, be the assemblage of such substances. Here, again, no attempt is made to explain how Matter can be a unity, and yet differentiate itself in an infinite variety of clearly defined substances. There is a tendency, however, to regard the common characteristics of all substances — extension, mobility, weight, etc. — as constituting the essence of Matter. This tendency leads to the second scientific conception of Substance and of Matter.

This third conception is of most importance for our immediate purpose. The identity of a substance is now held to lie in the permanence of its mass as a whole, or of the units of mass by which it is constituted. Thus, by a stroke, a whole group of properties is struck out of the list of essential attributes. A substance, it is held, may change in its chemical, electrical, or physical properties, but it cannot alter in the particles which compose it. Its mass as a whole may change its place, or its molecules or atoms may alter their position relatively to each other, but the sum of the units of mass, measurable by the amount of resistance they offer, or by their gravity, is a constant quantity. Here we have a most important alteration in the notion of Substance. According to common sense, a Substance to be the same, must retain unchanged

those sensible properties designated by its name ; science in its first mind demands the permanence of chemical, electrical, or physical properties ; science in its second mind is contented with the mere unchangeability of the quantity of a substance. All three imply the union of identity and change, but by successive differentiation the essential attributes are finally reduced to quantity of mass, or solidity. One individual substance is distinguished from another simply by the greater or less number of its units, and by the relation of those units to each other in place, or of the units as a whole to another group of units. Hence Matter, as the totality of individual substances, is definable as an assemblage of units of mass. Since each unit is in space, and is capable of motion, matter, while it is regarded as differentiated in these units, is yet conceived as indifferent to position and to motion. And, as between all existing masses relatively to each other, and between the units composing any given substance, there is exactly the same relation of whole and part, while the elements are the same in both, we easily pass from substances to the one substance, which is matter. The essence of matter is therefore, from this point of view, equivalent to its quantity, or the number of its indivisible units of mass ; all properties except that of solidity are set aside as unessential. It is matter in this sense alone that is said to be "indestructible." Change, or position in space, succession in time, alteration in physical, chemical, or electrical properties, do not affect the essence of matter, because these changes still leave unaffected the number of units of mass which together make up matter as a whole.

The definitions of Substance and of Matter, so far, are based upon actual knowledge of the real relations of things, and imply a distinction between essential and unessential attributes. The fourth conception, on the other hand, expressly denies any knowledge of existence as it actually is, and the opposition of essential and unessential, the unity of identity and difference, vanishes in the affirmation of the Indistinguishable. Substance is the indeterminate, unknowable Substratum underlying the known properties of things. The identity of Substance is not due to the permanence of certain



definable attributes in the flux of other attributes, but in the absolute unchangeableness of Substance itself; that which has no attributes can suffer no change. Hence the definition of Substance coalesces with the definition of Matter in itself, since both alike are definable as that which has no knowable attributes; every Substance is a pure changeless identity, and therefore none is distinguishable from the rest. Here we reach the extreme limit of abstraction; the conception of Matter cannot be further attenuated, and perforce we must be contented with the purified residuum we have at last obtained.

The mere fact that Matter has such a variety of significations is of itself a sufficient reason for carefully marking off each from the rest. The tendency to pass unconsciously from the one to the other must lead, unless great care be taken, to a confusion of thought disastrous in its results. But there is a special reason, in the present instance, for exactly distinguishing the one from the other. As will be made good in the sequel, the whole reasoning by which Consciousness is plausibly explained by the conception of Force, and only allowed a rank coördinate with special Forces of nature, rests upon the tacit assumption that what is true of Matter, defined as an assemblage of units of mass, is true of Matter in its other definitions also. Because, in one signification of the term, it is correct to say that Matter is a collection of atoms, it is taken for granted that the conception of Force, which is a synthesis of Matter and of Motion, is adequate, not only to the definition of Matter as displaying chemical, electrical, and physical properties, but to Existence in all its modes, including Life and Consciousness. We have seen, by a bare enumeration of the different meanings assignable to the term, that Matter connotes only those properties for the time regarded as essential, and that the reality of those properties which, from a special point of view, are looked upon as unessential, is quietly ignored, if it is not positively denied. There is thus a real danger that the relative distinction of essential and unessential should be regarded as an absolute distinction, with the result that all properties rejected for the time being as unessential should be thrown away altogether as so much waste of

nature. That this prevision of danger is not imaginary becomes manifest when we find the conception of Force, employed as a rubric, applicable to all modes of existence.

An examination of Mr. Spencer's chapter on the Indestructibility of Matter<sup>3</sup> at once shows that the term Matter is employed by him in all of the four senses distinguished above, and that the first three are made use of without any notice being taken of the transition from the one to the other. The doctrine of the indestructibility of Matter does not tell us anything whatever in regard to the permanence or fugitiveness, the ultimate reality or unreality, of physical, chemical, or vital relations; it tells us only that the total number of the units of mass that together constitute Matter is a constant quantity. That this is the real force of the doctrine no one, we think, is likely to dispute, but very many are sure to forget. This indestructibility of Matter, Mr. Spencer begins by saying, "so far from being admitted as a self-evident truth, would, in primitive times, have been rejected as a self-evident error. There was once universally current a notion that things could vanish into absolute nothing, or arise out of absolute nothing." This illusion has, however, been gradually dispelled by wider knowledge. "The comet that is all at once discovered in the heavens, and nightly waxes larger, is proved not to be a newly-created body, but a body that was until lately beyond the range of vision. \* \* \* Conversely, the seeming annihilations of Matter turn out, on closer observation, to be only changes of state. It is found, *e. g.*, that the evaporated water, though it has become invisible, may be brought by condensation to its original shape."<sup>4</sup>

Here Mr. Spencer uses the term "Matter" in two distinct senses—that of common sense, and that of science in its first mind. To say that the primitive man denied the doctrine of the indestructibility of Matter is true or false, according to the meaning we give to the term. If by Matter we mean that which is definable as a totality of units of mass, the

<sup>3</sup> First Principles, Part II., ch. 4.

<sup>4</sup> First Principles, sec. 52, pp. 172, 173.

primitive man did not deny the indestructibility of matter, simply because he never thought of matter in that sense at all. If, on the other hand, we are to understand by Matter individual substances determined by the prominent properties which they manifest to the unreflective consciousness, then undoubtedly the indestructibility of Matter was denied. But, it must be added, that it was correctly denied. Neither Mr. Spencer nor any one else would maintain that the comet, as a visible object, begins to be for the observer before it is observed, and it was only of things as observed that the primitive man made any affirmation. The indestructibility of Matter, in short, does not mean the absolute permanence of sensible properties, but only the absolute permanence of Matter as a whole, of Matter as composed of indivisible units of mass. There is, therefore, no incompatibility in the denial of the permanence of sensible objects, and the affirmation of the permanence of the total quantity of Matter. That Mr. Spencer supposes the two propositions to be contradictory, surely argues the absence of a clear consciousness on his part of the distinction between two quite different conceptions of Matter. And, surely, there is further confusion in the first proof given of the indestructibility of Matter. That "the evaporated water, though it has become invisible, may be brought by condensation to its original shape," proves that change in the sensible properties of things does not necessarily imply change in the essential properties; but it does not prove what it ought to prove, viz., that the quantity of Matter always remains the same. Here, therefore, we have Matter employed, first, as that which has certain prominent, sensible properties; and, secondly, as that which has certain physical, chemical, or electrical properties; and neither of these is distinguished from the third conception of Matter, as that which is made up of a definite number of indivisible atoms.

Mr. Spencer's next step, however, shows that only in this last sense can we properly speak of the indestructibility of Matter. "Not till the rise of quantitative chemistry," he says, "could the conclusion suggested by such experiences be reduced to a certainty. When, having ascertained, not only

the combinations into which various substances enter, but also the proportions in which they combine, chemists were enabled to account for the matter that had made its appearance or become invisible, the proof was rendered complete. When, in place of the candle that had slowly burnt away, it was shown that certain calculable quantities of carbonic acid and water had resulted — when it was demonstrated that the joint weight of the carbonic acid and water thus produced, was equal to the weight of the candle, plus that of the oxygen uniting with its constituents during combustion — it was put beyond doubt that the carbon and hydrogen forming the candle were still in existence, and had simply changed their state.” Here we have exemplified the transition from the common conception of Matter, through the first scientific conception of it, to the final definition of it as a combination of units of mass. When Mr. Spencer speaks of the “candle that has slowly burnt away,” he is speaking of Matter simply as the totality of sensible substances — of Matter as understood by common sense. So long as a substance retains the properties by which it is known and identified, it may change, but its substantiality remains undisturbed; when the properties assumed to be essential to it, and fixed in a name, are no longer present, the identity of the substance is denied. Secondly, by the identity of Matter, Mr. Spencer means the permanence of the chemical and other properties that, together, define the essence of substances. The candle “burns slowly away,” — *i. e.*, the sensible properties disappear, but “certain calculable quantities of carbonic acid and water have resulted,” *i. e.*, the properties by the scientific chemist known to be essential have not disappeared, but are permanent. The constituent elements of the substance no longer occupy the same relative position as regards each other; but, while separated, they still exist, ready to recombine, the moment the old conditions are restored. Here, again, what we have is not the indestructibility of Matter as it must be conceived by the correlationist, but the permanence of the elementary constituents of substances as defined by their chemical attributes. And hence we find Mr. Spencer coming, at last, to the third conception of matter. The “joint weight

of the carbonic acid and water," produced by the burning away of the candle, is "equal to the weight of the candle, plus that of the oxygen uniting with its constituents during combustion." Even here we have not a perfectly clear presentation of the conception of Matter, in the sense in which alone we can speak of the indestructibility of matter, for weight properly comes under the notion of Force, not under that of Matter. The reason of this want of definiteness, of course, is, as we shall afterwards see at more length, that the extremity of abstraction, condensed in the term Matter, has to be corrected by the reintroduction of elements presupposed in that abstraction, and hence it has to be admitted, as is virtually done here, that the atomic conception of real existence is only a partial expression of the truth. Still it is evident, on consideration, that what alone is conceived as absolutely permanent is the quantity of the constituents, *i. e.*, the number of units of mass, as measured by their joint weight. Here, therefore, we come to that final definition of Matter which is alone really established by the doctrine of its indestructibility. No sensible property, no chemical or physical property, of substances is permanent; nature undergoes perpetual metamorphoses, but all through the infinite variety of its changes, the unitary masses of matter are unchanged and unchangeable. This is the basis of the atomic theory. Abstracting from all other differences of the real world, and fixing exclusively upon the attribute of solidity, we may affirm, provided we are allowed to endow the different sorts of atoms with different weights, that the mass of every body, and of every constituent element of a body, never either increases or diminishes. There may be change in the relative positions of masses, or of the molecules or atoms composing masses, but none in the quantity of the masses, because none in the individual atoms. From which it directly follows that the total number of units of mass must be eternally the same—in other words, that matter is unchangeable in its total quantity. It is evident, from this, that the doctrine of the indestructibility of matter is based upon a partial or abstract consideration of the real world, and that any theory which treats this

abstraction as if it were synonymous with concrete existence, must end in a distorted conception of the more complex elements of existence. It is this process of abstraction which, unaware of its own character, gives rise to the supposition that Intelligence is definable as a special Force among other cöordinate Forces. By tracing the successive stages of its growth we may, perhaps, help to dispel the illusion that the unity and permanence of the intelligible world is adequately formulated in the doctrine of the indestructibility of matter and the persistence of force.

The very beginning of the intelligent comprehension of reality cannot be regarded as analysis alone, nor synthesis alone, but as one indivisible act comprehending both within itself. The initiary limit of knowledge may be formulated either in the judgment, "This is real," or in the identical judgment, "I know this as real." But this judgment, it must be observed, is partly an abstraction that does not adequately express all that is implied in the very simplest knowledge of that which is real. For "This" is perfectly indeterminate, whereas every real conception is determinate. Correctly to formulate the beginning of real knowledge, we must throw our judgment into the shape, "This is not That," or, from the side of the subject, "I know This as distinguished from That." The first reality known, or the primary act of knowledge, is therefore concrete. The beginning of intelligent experience is only expressible in the form of a syllogism, not in the form of a conception, or even of a judgment. The analytical aspect of this real act is the affirmation of one property or relation as real; its synthetical aspect is the comprehension of both properties or relations as only real in their community with each other. On the side of intelligence, the analysis is the reference of one property, thought as the negative of another, and therefore itself as positive, to a universal self; the synthesis is the twofold reference of both to the same indivisible self. Hence the fallacy of the ordinary theory of abstraction; hence the elaborate trifling of common Logic, which runs out into a bewildering maze of subtleties, and perversely represents Thinking as the

very superfluous process of converting reality into fiction. Real objects, it is supposed, are first constituted of various properties, revealed by the immediate presentations of Sense ; and then Thought, of its own arbitrary choice, selects one out of the number, and sets it apart for special contemplation. Now, such an imaginary process of Abstraction is supposed to be possible only because a complex act, having the double aspect of analysis and synthesis, has gone before and supplied a concrete reality to operate upon. We may easily see what gives countenance to this false explanation of the process of thought. There is a sense in which it may be said that knowledge is based upon abstraction or analysis. The comprehension of one property in pure isolation is a feat that can be performed by no conceivable intelligence, since every property is itself only in relation to another property ; but in the advance of knowledge, by successive differentiation, it naturally comes about that a greater degree of interest attaches to one term of a relation than to another. Hence one property, or one set of properties, is looked upon as positive, in contrast to the other or others, which are regarded as negative. The distinction is itself a purely arbitrary one, for the term from one point of view called positive may from another point of view be termed negative. But this predominant interest in one term of a relation, while it does not convert the isolated term into an independent reality, yet prepares the way for the illusion that it does so. And hence, at a later stage of thought, the positive properties—the properties in which an excess of interest is felt—are classed together as the *essence*, or definition of a thing, while the negative properties are vaguely passed over as unessential. But essential and unessential, like positive and negative, are purely relative distinctions ; what from interest is now conceived as essential, is again rejected as unessential. It must, therefore, never be forgotten that, when we speak of the essence of a thing, we do not thereby limit reality for all time to the special group of properties we have in view for the time being. When Matter is said to be defined by the property of solidity, its essence, it is a tremendous perversion of the truth to suppose

that by such a limitation we have, as by a magical incantation, caused all the other relations of the universe to disappear. Those properties classed as essential, fixed in a definition, and marked by a common name, are real; but they are not all that is real. The conception of Matter as a congeries of indivisible units of mass is not intrinsically truer or more valuable than the conception of Matter as defined in the totality of Chemical relations. Intrinsically, the one is as important as the other; relatively, the one or the other is more important, according to the special point of view; absolutely, *i. e.*, as a formulation of existence in its completeness, the more complex conception is the more important of the two. The term Matter, like all other common names, is simply a short-hand method of designating one aspect of real existence; it is no mystic spell to conjure all other relations into nonentity. The only sense, then, in which it can be said that knowledge is gained by an analytical process is that in which the mind's interest in a special set of properties overrides its interest in another set; so that the negative term of the relation is passed over as unessential, and only the positive term is attended to. In reality, as has been shown, analysis is not a single process, but only one aspect of a single process; just because one property is only an element in reality, and, therefore, in itself an abstraction, every real act of knowledge is synthetic not less than analytic.

The reality of a property depends upon its negative relation to another property. To this we must add that the relation of the two terms is real solely because of their relation to the Intelligence manifesting itself in them. The judgment, "This is not That," may be more fitly thrown into the formula, "This is known not to be That." It is a stubborn illusion, shared alike by the man of common sense and by the purely scientific man, that, besides the properties or relations by which things are constituted, there is a third "something," separable from the thinking self, and constituting the only real existence. Our analysis, however, of the initial act of knowledge makes it evident that this "something" is simply the abstraction of relation-to-intelligence. Remove the rela-



tion to intelligence, with its double aspect of positive and negative, essential and unessential, and nothing whatever remains. The relation is real, and the thinking self is real, but there is no "something" over and above this unity of universal and particular. And the real relation thus constituted by intelligence is not a merely particular judgment; in the reality of the relation is involved its absoluteness or universality; and this we may express in the judgment, "This particular relation is universal." A relation because it is real is universal, and it is universal because it is thought. No doubt it may be afterwards discovered that, from a higher point of view, the relation at first regarded as absolutely permanent is not in itself permanent, but has to be carried up into a wider universal; but this does not destroy its reality, and therefore does not affect its universality. The subsequent advances in knowledge, as repetitions of the primary act of knowledge, involve a process of combined analysis and synthesis, and thus existence increases in complexity, while intelligence never loses its unity. We may, therefore, say that knowledge proceeds from the less to the more concrete, the more to the less abstract, the less to the more known. Hence common knowledge is more abstract, or less concrete, than scientific knowledge. Here, again, it is important to notice that, from the mind's predominant interest in some terms over others, certain properties are classed as essential, others as unessential. Thus, existence gets separated into groups of positive attributes, while the other attributes are vaguely merged in the general conception of negation. From this point of view common knowledge may be said to be analytic, not because analysis is possible apart from synthesis, but because the mind's interest in the positive attributes gives them a fictitious excess of reality for the time. Thus, the way is made easy for that formulation of common sense which, overlooking the negative movement involved in the process of knowledge, conceives existence as made up of a number of individual things or substances having purely positive attributes. Hence, a double illusion: the illusion that the substance itself is real, apart from its relations to other substances, and that it is real

out of relation to intelligence. Just as the negative factor implied in every form of reality is passed over as if it were not, because of the almost exclusive interest taken for the time being in the affirmative factor, so the still less manifest relation of the properties to intelligence is overlooked or misinterpreted. Accordingly, we find the empiricist, who formulates the common-sense conception of reality, speaking in language which implies the threefold fiction of "something" apart from its properties, of positive attributes in isolation from negative, and of a concrete reality independent of intelligence. Recognizing the analytic or affirmative side of knowledge, and passing over the synthetic or negative side, he is led to separate real existence from that which is the necessary condition of its reality. The same imperfect comprehension of the elements of knowledge and of reality which leads him to raise the positive or relatively essential properties to the "bad eminence" of independent sovereignty also suggest to him to separate Matter, as defined by one set of properties, from Intelligence, as defined by another set, and to claim for each a reality of its own. He passes from the one to the other in turn, and cannot be got to see that, as the negative aspect of reality has also a positive side, a real world apart from a universalizing intelligence to make it real, is as much a fiction as a circumference without a center.

The development of common into scientific knowledge involves a great increase in that double process of differentiation and integration which is implied in the simplest conception of reality. The universe increases immensely in complexity, but at the same time it coalesces into a more perfect unity. Here, also, countenance is given to the false conception of real knowledge as a process of analysis or abstraction. The empiricist is not content merely to separate Thought and Matter as abstract opposites of each other. He applies the same process of abstraction to the various aspects in which Nature itself is contemplated by the scientific mind in its different moods. Common knowledge really grows up by means of a dialectical process, in which there is a perpetual equilibrium of the positive and the negative aspects of reality. But as the individual

mind interests itself temporarily only in the attributes it conceives as positive or essential, the negative or unessential attributes are passed over with a hasty glance and forgotten. Thus the equilibrium is destroyed. The same dialectical process, and the same predominance of interest in certain select relations of existence, is manifested in the procedure of the special sciences; with this difference — that each tendency is carried out to its extreme. The scientific man breaks up the first immediate unity of things, which is sufficient to satisfy the languid interest of common sense, and in this analysis he vastly extends the synthesis essential to all experience, increasing a thousandfold the complexity of the known universe. But as his interest centres, not in the easily accessible relations alone regarded by common sense, but in those hidden away from its superficial gaze, he naturally treats the sensible properties of things as unimportant and unessential. This affords the empiricist fresh scope for misconstruction. The relations of things which are accessible to all are not for that reason absolutely unessential, but they are apt to be thought so by one who places himself at the purely scientific point of view. And this is what the empiricist frequently does. Overlooking, in his haste, the negative element essential to all knowledge, he assumes that the relations labelled “essential” by science need alone to be considered, while those relations classed by it as “unessential” may be thrown out as so much useless lumber. But no aspect of reality, or of knowledge, is unessential to one who proposes to formulate the conditions of reality as a whole, and to give a true account of the nature of knowledge. Part of the problem of Philosophy is, in fact, to bring forward into the light those elements of existence and of knowledge that, by common sense and by the special sciences, are allowed to rest in shadow. Philosophy can plead no predominant interest in one aspect of the world rather than in another, for to it all are alike important and alike essential. The equilibrium of real existence disturbed by the preoccupation of common sense and of science must be restored. Philosophy may not pander to the one-sidedness of common and of scientific knowledge without violating its most sacred

duty ; it must formulate existence in its totality, dismissing no aspect of it with a contemptuous "unessential!" The empiricist does not know his duty, and hence he seizes upon the analytic side of knowledge, to the neglect of the "synthetic unity of experience." And not only does he throw aside as unessential those real relations emphasized by common sense, but he is prone to dismiss from his thoughts all elements of reality except the most abstract. Having once entered upon the path of abstraction, he is never at rest until he has followed it up to its issue. The rejection of the sensible properties of common knowledge is not enough, but he must go on to remove even such manifestly real properties as those conceived to be essential by the chemist, the physicist, and the astronomer ; nay, he will carry the process of pure analysis to its utmost limit, and pause only when his frenzy for abstractions has faded away into an ecstatic vision of Matter in itself. The nude form of a universe, differentiated only by a multiplicity of units of mass, is still too concrete, too definite for him ; he has not yet stripped existence to the bone, and he must complete the process, or be miserable. Such devotion to the abstract not only renders a true philosophy an impossibility, but it completely misconstrues the essential character of scientific procedure. The differentiation of physical from chemical relations, and of the latter from dynamic relations, is not only a justifiable procedure of science, but it is the condition of scientific progress ; the elimination of all motion, change, and life from the world is essential to the comprehension of the world as a collection of units of mass, and to exactness in dynamical and chemical conceptions. But because the special sciences, for sufficient reasons of their own, concentrate their attention upon certain aspects of existence, to the exclusion of others not less essential, that is no reason why the philosopher, who is not bound by the same rules as the scientist, should raise the special to the dignity of the universal. The dry bones of reality must again be clothed upon and touched with new life before any theory adequately representing the infinite fulness of the intelligible universe can be framed.

“It is important,” says Mr. Lewes, “to bear in mind that all our scientific conceptions are analytical, and, at the best, only approximative. They are analytical, because science is ‘seeing with other eyes,’ and looks away from the synthetic fact of experience to see what is not visible there. They are approximations, because they are generalities.”<sup>5</sup> The contrast here drawn between common knowledge as synthetic and scientific knowledge as analytic is utterly fallacious. There are not two discrepant processes of knowledge, but all knowledge is developed in the same way, by a differentiation that is at the same time integration—an analysis that includes synthesis. The unity of the process of knowledge is just as perfect as the unity of existence and the unity of intelligent experience. Common knowledge is more remote from reality than science, and hence it is more “general,” or abstract. When Science, to use one of Mr. Lewes’s illustrations, resolves Light into undulations of ether acting upon the retina, it does not pass from fact to abstraction, from synthesis to analysis. The point of view is changed; but in the change there is an actual increase in differentiation and integration, an advance from the more to the less general, the less to the more concrete. By breaking up the phenomenon of Light into its factors, the undulations of an elastic medium and the sensibility of the retina, the phenomenon is more exactly defined; the analysis is, at the same time, a new synthesis. And this is but a single instance of the general procedure of Science. It is true that, if we attend solely to its analytic aspect, as Mr. Lewes does, and attempt to build an exhaustive theory of the process of knowledge upon that alone, we may contrast the fulness of reality, characteristic of common knowledge, with the extreme tenuity of scientific knowledge; but to do so is simply to misinterpret the one kind of knowledge as well as the other. Both alike proceed, and must proceed, by a dialectic process that is neither analytic nor synthetic, but both in one; and both alike distinguish the essential from the unessential, the positive

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<sup>5</sup> Problems of Life and Mind, vol. ii, p. 226.

from the negative. Common sense attends only to those relations that rouse its interest, and all others it dismisses as unimportant. And as the attributes so selected are simply the most superficial, the knowledge of common sense is necessarily more "general" than the knowledge of science. What by the plain man is regarded as essential, is passed over as unessential by the scientific man; the interest of the latter lies in the more recondite properties of things, and hence those commonly known are taken for granted and lightly passed over. Science, as such, however, does not deny the reality of the ordinary relations; that is left for the empirical philosopher, who plumes himself upon the exclusive accuracy with which he formulates scientific procedure. When you know that  $7+5=12$ , you cannot be forever repeating the slow process of adding unit to unit. So, when the common properties of things are once known, they are as a matter of course taken for granted, and henceforth treated as  $= x$ . Hence the seeming abstractness of scientific knowledge, as compared with ordinary knowledge. But the abstractness is only seeming; we cannot be always going back to the very beginning of knowledge, but must take something for granted, and start afresh. Thus, science, without denying established relations, widens the area of existence, and increases the complexity of knowledge. It is by a reciprocal analysis and synthesis that science comes to classify one set of relations as essential and another set as unessential. But, as no real properties are unessential in the last resort, the distinction is an artifice of science, not one determining the nature of real existence itself. Mr. Lewes's mistake is that of all empiricists; he takes the real world, in the plenitude of its known relations, and this he supposes to be known by a "synthesis of sensibles." That is to say, the presentations of Sense reveal existence as it truly is; and hence science, as contemplating only special aspects of existence, stands in unfavorable contrast to the knowledge of common sense. But, in the first place, Sense does not give real objects, for it gives of itself nothing at all; and, secondly, supposing it did, it would be "synthetic" only by including scientific knowl-

edge as a part of universal knowledge. On the first point, nothing more needs to be added. The second point brings out the fallacious procedure of empiricism into especial prominence. Mr. Lewes contemplates the real world after the completion of the long process by which it has been manifested to intelligence, or, more correctly, after intelligence has manifested itself in it; and hence, attending only to a part of that process at a time, he plausibly tells us that science deals only with "generalities." Most assuredly it does, if we contemplate the intelligible world as a whole; most assuredly it does not, if we are speaking of it as compared with ordinary knowledge. The part is always less than the whole, and therefore more abstract; to say that the world as it interests science is partial or abstract, compared with the world in the plenitude of its relations, while a true, is not a very instructive remark; and to maintain that it is more abstract than that common-sense knowledge with which it starts, and which it is its one object to extend, is an utter perversion of the truth. Empiricism is perpetually oscillating between truism and falsehood.

Mr. Spencer, as his readers are never allowed to forget, holds that, after giving an "inductive" proof of a proposition, it is necessary straightway to supplement it by a "deductive" proof. It is curious that it has never occurred to him that two things which cannot be permitted to stand alone must be but two aspects of the same thing. If either proof is complete in itself, why weaken it by the suggestion that it is in need of being complemented by its opposite? There is a true instinct in this double process of demonstration, but, like other instincts, it has a very imperfect comprehension of itself. The opposition of Induction and Deduction is but another aspect of the false separation of Synthesis and Analysis. There is a real justification, from the point of view of scientific knowledge, in separating the one aspect from the other, and there is no practical harm done in regarding each as a separate process. For science rests upon an unformulated abstraction from Intelligence, and rightly regards its task as complete when it has set forth those relations that in their totality

express the realm of Nature. It is otherwise with philosophy, which proposes to itself the more ambitious task of formulating existence as a whole, and therefore essays to show the ultimate relations of Nature and Intelligence. Science, as has been reiterated, perhaps to weariness, is interested only in certain aspects of reality, and hence it takes for granted the relations of things familiar to common sense. Things, as partially qualified, are its points of departure, and its own peculiar procedure consists in extending and widening common knowledge. Thus it may rightly enough be said to proceed "from the known to the unknown," or, as we should prefer to say, from the less to the more known. This is what science knows as Induction.

It is rightly held that no advance in knowledge is possible by what Syllogistic Logic calls Deduction, since by a mere restatement of that which is already assumed to be known no advance to the "unknown" can possibly be made. We cannot, therefore, wonder at the contempt of science for "mere conceptions." The contempt is a healthy one. The man of science knows that to gain any real knowledge he must begin where common sense leaves off; that to know more about existence he must go out beyond ordinary conceptions of existence. Empirical Logic, here following scientific thought, also asserts that knowledge is gained by a discovery of new relations of things; and, so far, it is correct. But, as it falsely asserts that our common knowledge of things is acquired by passive observation, it takes for granted that individual things, or particular "facts," are discerned without any constructive activity of intelligence. Hence, the discovery of new relations is supposed still to leave individual things in their isolation. The only change in things is in their greater complexity. The real world is now supposed to have, independently of intelligence, all the properties revealed by science, as well as those known in ordinary knowledge. Induction now assumes quite a different aspect. It consists in the separation, one by one, of properties already assumed to be known, and hence it is no longer a progress from "the known to the unknown," but a regress from the more to the less



known. By abstraction, it is supposed, a general law is discovered; and this law, once discovered, may be shown to apply to the particular facts from which it was abstracted. The process of reasoning down from the general law to the particular facts is Deduction. Now here we have a confusion between a universal as law of nature and a universal as an abstract conception. If nature is already known in the fulness of its relations, what possible sense is there in seeking for laws of nature, which are but special groups of relations considered apart? If everything is known already, there is no need either of Induction or of Deduction. By a bare intuition we may comprehend all things, and any process of knowledge is not only useless, but impossible. Thus, the measure of truth which Empirical Logic had attained to in the judgment that knowledge proceeds "from the known to the unknown" is again lost in a theory of Deduction, that, assuming a perfectly known world to begin with, can only explain the process of knowledge as a retreat from the better known to the less known. If we take the first, and relatively correct, notion of Induction as a progress from the less to the more known, we may easily give it a form that will correctly embody the true process of knowledge. Every advance in knowledge is the discovery of a new relation, and every new relation is, from its connection with intelligence, necessary and universal. Thus scientific knowledge does not first reveal a number of disconnected particulars, and then proceed to combine them into a general law. The law is discerned in the discernment of the particulars. A law is neither more nor less than a complex of relations, and all relations are *ipso facto* universal and necessary. The distinction between "fact" and "law" is a purely relative one. A fact is not by itself regarded as a law, but it contains the universal element which is characteristic of law. In speaking of facts, we are looking rather at the particular than the universal aspect of relations; in speaking of a law, we contemplate the universal rather than the particular aspect. But there is no real separation in reality or in knowledge. That which is real is necessarily universal, and there is no universality apart from reality. Induction emphasizes

the particular aspect of reality. Deduction emphasizes the universal. In the one, it is said, we go from the particular to the universal; in the other, from the universal to the particular. Correctly stated, there is no "going" from the one to the other at all, for each only exists in and through the other. If the particular did not imply the universal, no combination of particulars would be possible, and hence there could be no universal law; the universal separated from the particular is no law, but a barren abstraction. The true process of knowledge is, therefore, one combining these two aspects of knowledge in one indivisible act. There is not pure Induction or pure Deduction, but both; and the separation of the one aspect from the other, however convenient it may be to the individual enquirer, is but a logical artifice, that in no way affects the real indivisibility of the one dialectic process.

These considerations warn us beforehand what we are to expect from the "inductive" and "deductive" proofs offered by Mr. Spencer in support of the doctrine of the indestructibility of Matter. We may be certain that they are but different ways of stating the same thing, and that the one simply makes explicit that which in the other is implicit. The inductive proof is briefly this: Take any substance, and find out by weighing it the number of its constituent atoms; let it undergo a chemical or physical process of change, and it will be found that the number of constituent atoms is still exactly the same as before. Here we start from the ordinary empirical assumption that a thing, as variously qualified, is given by purely passive observation. The Induction itself is further supposed to be a process of passive observation. But, if that be the case, how can we legitimately pass from our particular observations of individual substances to the universal affirmation that Matter as a whole is indestructible? As Hume has shown, the mere observation of facts does not entitle us to make any universal judgment; we are confined to the judgment, "This substance, so long as I observe it, remains the same in quantity." The tacit assumption, therefore, which underlies this so-called inductive proof is that the proportion between weight and mass, or force and matter, because

it holds good in particular instances, also holds good universally; in other words, every real relation is universal. The "deductive" proof simply brings out into relief the assumption here obscurely made. We may conceive Matter to be compressed, it is said, to any finite extent, but we can never conceive it to be compressed into nothing. Now, there is no difficulty in conceiving — *i. e.*, imagining — any given unit of mass to be reduced in size, so long as we contemplate the mass *per se*, without introducing the conception of weight or force impressed. In like manner, it is perfectly easy to imagine the decrease of the given weight of any mass, so long as we abstract from the mass and look only at the weight. What, then, is inconceivable? Manifestly, the conception of a mass that is not proportional to weight, or of weight that is not proportional to mass. We cannot conceive Matter compressed into nothing, because we cannot conceive the compression of nothing. The deductive proof, therefore, asserts universally that mass and weight are correlative and proportional. How is this known? Evidently by an appeal to Induction. The universal law has no meaning except in and through its particulars; it is a mere name, until we assume certain real relations of mass and weight. The truth underlying these proofs, therefore, is that every particular relation is universal. This universality and particularity are alike due to intelligence. The comprehension of any relation as real is at the same time the affirmation that, wherever that relation exists, there the universal law holds good. The doctrine of the indestructibility of matter is but an imperfect statement of the immortality of intelligence.

The fourth, or metaphysical conception of Matter is, in one view, an utter perversion of the relations of existence and intelligence, and, in another view, an unconscious testimony to their unity. We have seen that, while knowledge is in all cases a double process of analysis and synthesis, induction and deduction, there is yet a natural illusion which gives countenance to the fallacy that the product of knowledge is due to analysis only. In the search for an ultimate unity, the motive power of all philosophical speculation, there is a predis-

position to fix upon the positive aspect of thought, to the exclusion of the negative aspect. Put into practice, this predisposition results in the false supposition that unity is to be sought by abstraction, and not by synthesis, in the elimination of differences, not in the combination of differences in a higher unity. Empiricism, in dealing with the known world, ends in the exclusion of all except quantitative relations as unessential or negative. But this still leaves a trace of differentiation, and the restless aspiration after a perfect unity only finds its object, or supposes it has found it, in the pure, undifferentiated unity of MATTER IN ITSELF. Now, when we ask what relation this pallid abstraction has to the process of knowledge, we find that it is just its ideal beginning, the mere "something is," the Aristotelian *ἔστι*. Thought has gone through a laborious experience, only to reach as its goal the point from which it set out. Strictly speaking, as has already been shown, this supposed realization of the high aspiration after unity is not even the initial limit of knowledge, for that involves the reflection of one term of a relation upon the other, and of both into the intelligence which is their source. "Something," or "Matter in itself," is the bare predicate of reality, detached from its proper connection and raised by abstraction to a fictitious independence; or, otherwise expressed, it is the "think" without the "I." To invest this vague prophecy of the unity of all existence — or, what is the same thing, of the unity of intelligence — with mysterious and awe-inspiring attributes, is but to destroy the abstract purity of Matter in itself, and to become the prey of an imagination freed from contact with the real world. The self-deception which finds in pure Being a fit object of worship is only worthy of tolerance because it may be regarded as an unconscious testimony to the real identity of Thought and Existence. It is a true philosophic impulse, which ever points onward to a perfect unity, reconciling all differences; but the impatience and confusion of thought which lead to the notion that a true unity is to be found by the facile process of ignoring all differences is a perversion of that impulse, and a destruction at once of knowledge and of reality.

The result of our investigation thus far is to show that Matter, as conceived by the correlationists, is synonymous with indivisible units of mass, and excludes from its essence or definition all other relations whatever. "Matter," says Mr. Lewes, "is the Felt, viewed in its statical aspect."<sup>6</sup> If for "Felt" we substitute "Intelligible," and interpret the phrase "in its statical aspect" to mean "conceived as exclusive units of mass," this definition may be adopted. Intelligence, at the stage in question, conceives the universe as absolutely indifferent to all change, not excluding change of place or motion, and attends only to the permanence of its extended and solid particles. This is not absolutely the first stage in the rational evolution of the real world, as revealed by science, but it is one of the earlier stages. The simplest conception of all, as we saw, was that of Space, the synthesis of homogeneous units, definable only as each external to the rest. This mere outerness begins to give way in the notion of Time, the synthesis of homogeneous units that are, not only out of each other, but, so to speak, into each other. The synthesis of Space and Time is the conception of Position, the mutual relation of relatively concrete units of space, that persist through successive times. Positions, as indifferent to each other, and as filled, form the content of the conception of Matter, defined as an aggregate of mutually exclusive units of mass. But as all positions are relative to each other, and as all alike may be filled, there is implicit in the notion of Position the more concrete idea of Motion, and in the notion of filled positions, the idea of specific motion, *i. e.*, the motion of Matter. Matter, defined as a congeries of exclusive units of mass, thus finds its justification in the correlative notion of concrete Motion. Hence, the conception of existence, as arrested in isolated atomic units, has to be corrected by the conception of those units as changing their relative positions. The conception of Motion is thus the first remove from the purely abstract notion of the real world—the first negation of the atomic conception of existence. The complete justifica-

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<sup>6</sup> *Problems of Life and Mind*, vol. II p. 231.

tion of this negation is to be found in the notion of Force, which is a negation of negation, a second remove from the abstract conception of things. Motion and Force, in their relations to Matter, will, therefore, be our next topic.

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## JACOB BOEHME.

[TRANSLATED FROM HEGEL'S HISTORY OF PHILOSOPHY, BY EDWIN D. MEAD.]

### I.

From Lord Bacon, the English lord chancellor, and the chief leader of all external, sensuous philosophizing, we turn to the *Philosophus Teutonicus*, as he was called, to the shoemaker of Lusatia — a man of whom we Germans need not be ashamed. It was, indeed, through him that philosophy first appeared in Germany with a distinctive German character. He stands in the directly opposite extreme to Bacon, and was called *Theosophus Teutonicus*, even as formerly Mysticism was called *Philosophia Teutonica*.

This Jacob Boehme was long forgotten, and was decried as a pietistic visionary. The period of enlightenment, especially, limited the number of his students. Even Leibnitz esteemed him highly; but not until more recent times has he again been duly honored, and has the profundity of his thought again become acknowledged. It is certain that, on the one hand, he does not deserve that old contempt; but neither, on the other hand, is he entitled to that high honor to which the present has sought to elevate him. To call him a visionary signifies nothing. If one pleases, one can call every philosopher so, including Epicurus and Bacon; for even these have held that man has his true reality in something other than eating and drinking, or the every-day life of hewing wood, or making clothes, or buying and selling. As to the high honor to which Boehme has been elevated, he owes it especially to his form of contemplation and sentiment; for contemplation and inward feeling, praying and longing, the figurative style